Work Order ID 85986

June-19-12 1:15:35 PM

85986

Item ID: D212-664-101TRN **Accept** *N900040100* **Setup Start** *NS1*

Revision ID: **Stop** *NS2*

Item Name: Crosstube Turning Detail

Start Date: 19/06/2012 **Start Qty:** 1.00 *1*

Required Date: 03/07/2012 **Req'd Qty:** 1.00 *1*

Reference:

Cust Item ID:

Customer:

Approvals: **Process Plan:** MLJ **Date:** 12/06/19 **Tooling:** **Date:**

QC: **Date:** **SPC (Y/N):** **Date:**

Run Start *NR1*

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	**Revision Nbr**								
D212-664-141	Rev D (DEO)								
100		0.00							
100	MORI SEIKI CNC LATHE LARGE					1 0			
Mori Seiki	**Memo**	0.00							
Mori Seiki CNC Lathe Large	1-Fill tube with sand & install plugs DT8534 on both ends as per Folio FA113								
	2-Turn first side as per Folio FA113								
	3-Blend transition lines only, **do not sand whole tube**:								
	FOLIO REV: AA								
	DWG REV: D								
	*Use mill bastard file, brush file repeatedly with file card.								
	*Do not use sandpaper coarser than 320 grit.								
110	QC1- Inspect dimensions to dimension sheet	0.00							
110						1 0			
QC	**Memo**	0.00							
Quality Control									

mgml 12/07/16

mgml 12/07/16

Work Order ID 85986

June-19-12 1:15:35 PM

85986

Item ID: D212-664-101TRN **Accept** *N9000040100* **Setup Start** *NS1*

Revision ID: **Stop** *NS2*

Item Name: Crosstube Turning Detail

Start Date: 19/06/2012 **Start Qty:** 1.00 *1*

Required Date: 03/07/2012 **Req'd Qty:** 1.00 *1*

Reference:

Cust Item ID:

Customer:

Run Start *NR1*

Stop *NR2*

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120		0.00							
120	MORI SEIKI CNC LATHE LARGE					1	Ø		
Mori Seiki	**Memo**	0.00							
Mori Seiki CNC Lathe Large	1-Turn second side as per Folio FA113 2-Blend transition lines only, **do not sand whole tube**: *Use mill bastard file, brush file repeatedly with file card. *Do not use sandpaper coarser than 320 grit. FOLIO REV: A DWG REV: D 3-Remove sand and plugs								amanL 12/07/16
130	QC1- Inspect dimensions to dimension sheet	0.00							
130						1	Ø		
QC	**Memo**	0.00							
Quality Control	+ PERFORM ULTRA SONIC MEASUREMENT								amanL 12/07/16

DQA: _____ Date: _____

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

Work Order: _____

Part No. _____

NCR No. _____

DISPOSITION

- Rework ☐
- Scrap ☐
- Use-as-is ☐
- Work Order Update ☐

AGAINST DEPARTMENT/PROCESS

- Skid-tube ☐
- Machining ☐
- Thermoforming ☐
- Large Fab ☐
- Crosstube ☐
- Small Fab ☐
- Finishing ☐
- Composite ☐
- Prod. Eng. Coor. ☐
- Rec/Store/Packaging ☐
- Supplier ☐
- Other ☐
- Engineering ☐
- Quality ☐

Root Cause		Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data	☐									
Equip/Tooling	☐									
Operator	☐									
Material	☐									
Offset/Setup	☐									
Other	☐									
Process	☐									
Supplier	☐									
Training	☐									
Unauthorized	☐									

FAULT CATEGORY

Landing Gear

- ☐ Bending Passes Below Min
- ☐ Centre Not Concentric to O/S
- ☐ Cracks
- ☐ Crushed/Crimp at Bending
- ☐ Inspection Strip in Tube
- ☐ Other
- ☐ Positioned Wrong
- ☐ Ripples on Inner Bend
- ☐ Torque Waves in Extrusion
- ☐ Turning Sequence
- ☐ Wave/Twist in Tube

Hardware

- ☐ Breaking
- ☐ Missing
- ☐ Size/Length
- ☐ Spinning
- ☐ Threading
- ☐ Wrong

Drill Holes

- ☐ Misaligned
- ☐ Ovalized
- ☐ Over/Undersized
- ☐ Too Many

General

- ☐ Burrs
- ☐ Contamination
- ☐ Cut Too Short
- ☐ Documentation/Data
- ☐ Finish
- ☐ Inspection Incomplete
- ☐ Inspection Unqualified
- ☐ Instructions Incomplete/Unclear
- ☐ Jigs/Fixtures/Tooling
- ☐ Kit Incorrect
- ☐ Kit Missing
- ☐ Maintenance
- ☐ Mislabeled
- ☐ Off-Set
- ☐ Orientation Misread
- ☐ Out of Calibration
- ☐ Out of Sequence
- ☐ Outside Dimensions
- ☐ Over/Under tolerance
- ☐ Part Lost
- ☐ Part Moved
- ☐ Raw Material
- ☐ Set-up
- ☐ Supplier
- ☐ Temperature/Cure
- ☐ Weld
- ☐ Wrong Stock Pulled
- ☐ Other _____

Work Order ID 85986

June-19-12 1:15:35 PM

85986

Item ID: D212-664-101TRN **Accept** *N900040100* **Setup Start** *NS1*

Revision ID: **Stop** *NS2*

Item Name: Crosstube Turning Detail

Start Date: 19/06/2012 **Start Qty:** 1.00 *1*

Required Date: 03/07/2012 **Req'd Qty:** 1.00 *1*

Reference:

Cust Item ID:

Customer:

Run Start *NR1*

Stop *NR2*

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
140	QC8- Inspect parts - second check	0.00							
140									
QC	**Memo**	0.00							
Quality Control	+ CHECK ULTRA SONIC MEASUREMENT AND ORIENTATION FOR BENDING								
145		0.00							
145									
Crosstubes	**Memo**	0.00							
Crosstubes	GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.								
150	Crosstubes Chemical Conversion	0.00							
150									
HandFXtube	**Memo**	0.00							
Hand Finishing Crosstubes									

12-7-17

JW 12-7-18

JW 12-7-17

1- Process Work.

12-07-18 2. Acid Etch.

DQA: _____ Date: _____

NCR: Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

Work Order: _____

Part No. _____

NCR No. _____

DISPOSITION

- Rework ☐
- Scrap ☐
- Use-as-is ☐
- Work Order Update ☐

AGAINST DEPARTMENT/PROCESS

- Skid-tube ☐
- Machining ☐
- Thermoforming ☐
- Large Fab ☐
- Crosstube ☐
- Small Fab ☐
- Finishing ☐
- Composite ☐
- Prod. Eng. Coor. ☐
- Rec/Store/Packaging ☐
- Supplier ☐
- Other ☐
- Engineering ☐
- Quality ☐

Root Cause		Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data	☐									
Equip/Tooling	☐									
Operator	☐									
Material	☐									
Offset/Setup	☐									
Other	☐									
Process	☐									
Supplier	☐									
Training	☐									
Unauthorized	☐									

FAULT CATEGORY

Landing Gear

- ☐ Bending Passes Below Min
- ☐ Centre Not Concentric to O/S
- ☐ Cracks
- ☐ Crushed/Crimp at Bending
- ☐ Inspection Strip in Tube
- ☐ Other
- ☐ Positioned Wrong
- ☐ Ripples on Inner Bend
- ☐ Torque Waves in Extrusion
- ☐ Turning Sequence
- ☐ Wave/Twist in Tube

Hardware

- ☐ Breaking
- ☐ Missing
- ☐ Size/Length
- ☐ Spinning
- ☐ Threading
- ☐ Wrong

Drill Holes

- ☐ Misaligned
- ☐ Ovalized
- ☐ Over/Undersized
- ☐ Too Many

General

- ☐ Burrs
- ☐ Contamination
- ☐ Cut Too Short
- ☐ Documentation/Data
- ☐ Finish
- ☐ Inspection Incomplete
- ☐ Inspection Unqualified
- ☐ Instructions Incomplete/Unclear
- ☐ Jigs/Fixtures/Tooling
- ☐ Kit Incorrect
- ☐ Kit Missing
- ☐ Maintenance
- ☐ Mislabeled
- ☐ Off-Set
- ☐ Orientation Misread
- ☐ Out of Calibration
- ☐ Out of Sequence
- ☐ Outside Dimensions
- ☐ Over/Under tolerance
- ☐ Part Lost
- ☐ Part Moved
- ☐ Raw Material
- ☐ Set-up
- ☐ Supplier
- ☐ Temperature/Cure
- ☐ Weld
- ☐ Wrong Stock Pulled
- ☐ Other _____ _____ _____ _____

Work Order ID 85986

85986

June-19-12 1:15:35 PM

Item ID: D212-664-101TRN **Accept** *N9000040100* **Setup Start** *NS1*

Revision ID: **Stop** *NS2*

Item Name: Crosstube Turning Detail

Start Date: 19/06/2012 **Start Qty:** 1.00 *1*

Required Date: 03/07/2012 **Req'd Qty:** 1.00 *1*

Reference:

Cust Item ID:

Customer:

Run Start *NR1*

Stop *NR2*

Approvals: **Process Plan:** _____ **Date:** _____ **Tooling:** _____ **Date:** _____

QC: _____ **Date:** _____ **SPC (Y/N):** _____ **Date:** _____

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
160	QC7-Inspect Chemical Conversion Coat	0.00							
160									
QC	Memo	0.00							
Quality Control									
170		0.00							
170	Packaging								
Packaging	Memo	0.00							
Packaging	Identify and Stock in kanban rack Location: LG								
180	QC21- Final Inspection - Work Order Release	0.00							
180									
QC	Memo	0.00							
Quality Control									

12-7-18

JW 12-7-18

12/7/18

amf 12-07-18

Picklist Print

June-19-12 1:15:40 PM

Work Order ID: 85986

85986

Parent Item: D212-664-101TRN

D212-664-101TRN

Parent Item Name: Crosstube Turning Detail

Start Date: 19/06/2012 **Required Date:** 03/07/2012

Start Qty: 1.00 **Required Qty:** 1.00

Comments: IPP Rev:A 08-03-06 new issue DD verified by:ec
IPP Rev B 08.04.02 removed Polish EC verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6005-128		Manufactured	No			120	Each	20.0000	1	1			

D6005-128

Crosstube Material

**

Location	Loc Qty	Loc Code
LG	20	
69796	20	

mnL 12/07/15

NCR: Yes / No

DQA: _____ Date: _____

WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: Date:

Work Order: _____

Part No. _____

NCR No. _____

DISPOSITION

- Rework ☐
- Scrap ☐
- Use-as-is ☐
- Work Order Update ☐

AGAINST DEPARTMENT/PROCESS

- Skid-tube ☐
- Machining ☐
- Thermoforming ☐
- Large Fab ☐
- Crosstube ☐
- Small Fab ☐
- Finishing ☐
- Composite ☐
- Prod. Eng. Coor. ☐
- Rec/Store/Packaging ☐
- Supplier ☐
- Other ☐
- Engineering ☐
- Quality ☐

Root Cause		Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data	☐									
Equip/Tooling	☐									
Operator	☐									
Material	☐									
Offset/Setup	☐									
Other	☐									
Process	☐									
Supplier	☐									
Training	☐									
Unauthorized	☐									

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Landing Gear

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- ☐ Raw Material
- ☐ Set-up
- ☐ Supplier
- ☐ Temperature/Cure
- ☐ Weld
- ☐ Wrong Stock Pulled
- ☐ Other

_____

_____

_____

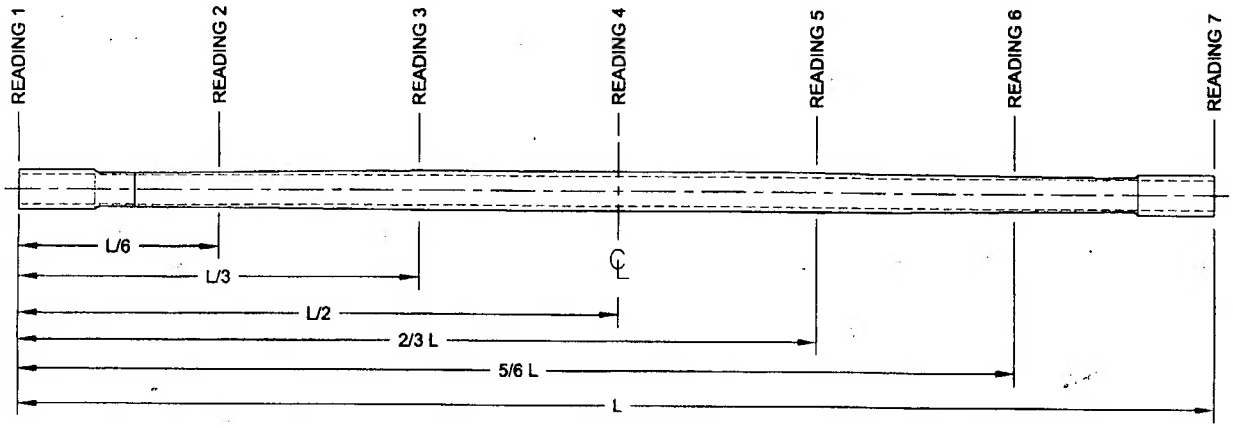
DART AEROSPACE LTD	Work Order:	85986
Description: Crosstube Assembly (205/212/412 High Fwd)	Part Number:	D212-664-141
Inspection Dwg: D212-664-141 **Rev:** D		Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

Inspection Sheet Drawing Dimension		Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
SIDE A	0.200	+/-0.010	.200	✓		vern	CNC-08
	R0.063	+/-0.010	.063	✓		RG	
	2.740	+0.005/-0.000	2.740	✓		vern	CNC-08
	5.097	+/-0.030	5.097	✓		↓	
	2.304	+0.005/-0.000	2.309	✓			
	2.340	+0.005/-0.000	2.342	✓			
	2.398	+0.005/-0.000	2.402	✓			
	2.448	+0.005/-0.000	2.452	✓			
	2.498	+0.005/-0.000	2.502	✓			
	2.549	+0.005/-0.000	2.553	✓			
	2.599	+0.005/-0.000	2.602	✓			
	2.671	+0.005/-0.000	2.674	✓			
	2.701	+0.005/-0.000	2.701	✓		↓	
SIDE B	0.200	+/-0.010	.200	✓		vern	CNC-08
	R0.063	+/-0.010	.063	✓		RG	
	2.740	+0.005/-0.000	2.740	✓		vern	CNC-08
	5.097	+/-0.030	5.097	✓		↓	
	2.304	+0.005/-0.000	2.309	✓			
	2.340	+0.005/-0.000	2.343	✓			
	2.398	+0.005/-0.000	2.403	✓			
	2.448	+0.005/-0.000	2.453	✓			
	2.498	+0.005/-0.000	2.502	✓			
	2.549	+0.005/-0.000	2.553	✓			
	2.599	+0.005/-0.000	2.603	✓			
	2.671	+0.005/-0.000	2.673	✓			
	2.701	+0.005/-0.000	2.701	✓		↓	
	126.514	+/-0.020	126.514	✓		tape	LG-22

DART AEROSPACE LTD	Work Order:	85986
Description: Crosstube Assembly (205/212/412 High Fwd)	**Part Number:**	D212-664-141
Inspection Dwg: D212-664-141 **Rev:** D		Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN) w1	w2	w3	w4	Deviation Δw (max-min)	TOLERANCE
READING 1 L= 0"	.379	.386	.383	.376	.01	
READING 2 L= 15	.206	.222	.218	.204	.018	
READING 3 L= 31	.287	.312	.307	.285	.027	
READING 4 L= 63	.373	.376	.395	.390	.022	0.048"
READING 5 L= 31	.276	.336	.316	.267	.069	OK, ORIENT WITH 0.267 DIM UP/DOWN IN BENDER. Dwg = 0.285" GP 12.02.16
READING 6 L= 15	.194	.239	.227	.193	.047	
READING 7 L=Cuff	.368	.381	.394	.381	.026	

Calibration Result

Actual Block Thickness: _____

Sitescan 250 Measured Thickness: _____

Measured by:	gmm.L
Date:	12/07/16

Audited by:	
Date:	12-7-17

Preliminary Approval:	
Date:	

Rev	Date	Change	Revised by	Approved
A	05.04.27	New Issue (P/O D412-664-101)	KJ/JLM	
B	06.03.15	Tolerance revised for 5.097 per Dwg Rev update	KJ/JLM	
C	07.05.28	Dwg Rev updated	KJ/JLM	
D	10.02.02	Dimension 126.514 was 126.51	KJ	
E	12.06.04	Wall thickness form added	KJ	

Item	Qty -141	Qty -141B	Part Number	Description
1	X		D212-664-141	CROSSTUBE ASSEMBLY (205/212/412 HIGH FWD)
2		X	D212-664-141B	CROSSTUBE ASSEMBLY (214 HIGH FWD)
3	1	1	D6005-128	CROSSTUBE
4	2	2	D2893-1	SUPPORT
5	4	4	D3595-063-450	RUBBER CUSHION
6	4	4	MS21920-25	CLAMP (OR MS21920-26)
7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

GENERAL NOTES:

1) MATERIAL: MANUFACTURED FROM D6005-128
   FINISHED LENGTH = 126.514±0.020
2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
   PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
   PAINT OUTSIDE PER DART QSI 005 4.2
3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED.
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
6) IDENTIFICATION: SCRIBE DART PART NUMBER "D212-664-XXX" AND BATCH NUMBER ON INSIDE OF CUFF USING VIBRATING STYLUS
7) WEIGHT: D212-664-141 = 33.6 lbs (PER IIN-D212-664)
   D212-664-141B = 33.6 lbs (PER IIN-D212-664)
8) PART IS SYMMETRIC ABOUT CENTERLINE.
9) RUN CUTTER OFF PART. BLEND OUT EDGE LONGITUDINALY, TRANSITION SHOULD BE SMOOTH.
10) BEND PROGRESSIVELY WITH A MINIMUM OF 3 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6% BASED ON O.D.
11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
13) INSTALL MS21920-25 CLAMPS (OR -26) WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE D2893-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMPS ARE OPPOSITE OF CROSSTUBE SUPPORT.
14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 85986 MLJ
12/06/19

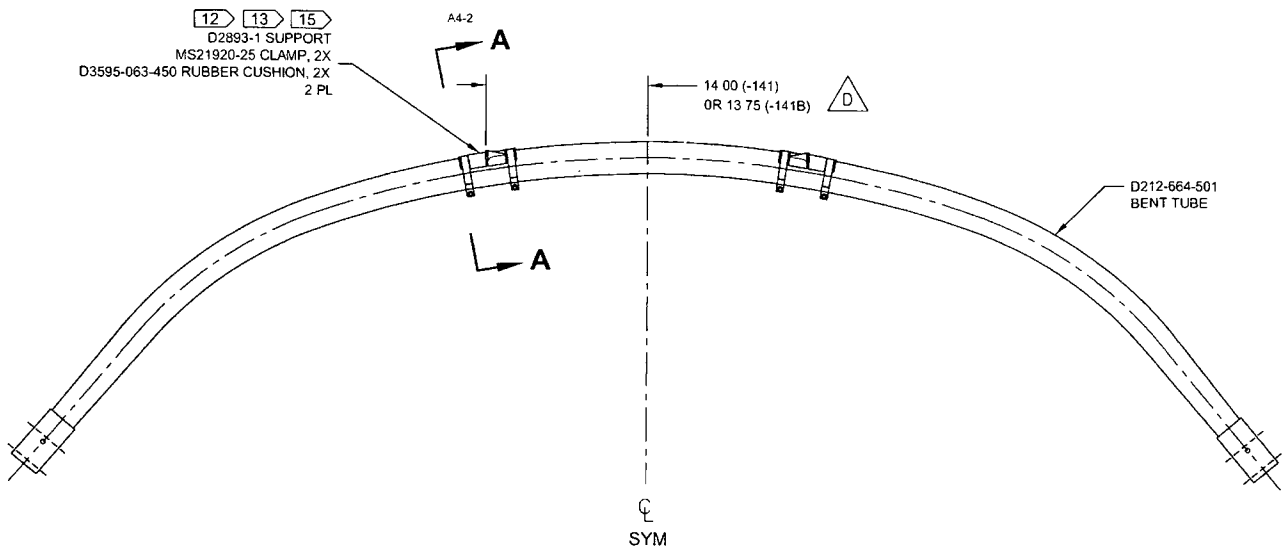
REMOVED FROM UNDER REVIEW per ECN # 11-614
~~UNDER REVIEW~~ 11.09.13
FOR PROJ. SEALING SUPPORT
11.07.26

DEO ATTACHED

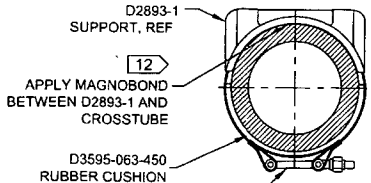
RELEASED
2009 -10- 29

REV.	DESCRIPTION	BY	DATE
D	REFORMAT/REVISE GENERAL NOTES/PART LIST; REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS; ADD -141B (ZN B4-2, D4-2); REMOVED REF & ADD TOLERANCES (ZN B4-3, C6-3, C8-3 & B6-3); RELOCATED FLAG #6 PER PAR 08-046 (ZN A5-3); MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4	RF	09.09.30
C	REMOVE -851 ABRASION STRIP; ADD MAGNOBOND 6398, CUSHION, REVERSE CLAMPS	PH	07.03.08
B	ADD HOLES FOR COMPATABILITY WITH BHT/AA SKIDTUBES	PH	05.02.04
A	NEW ISSUE	PH	00.12.12

DESIGN	PH	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	[illegible]	DRAWING NO.	REV. D
MFG. APPR.	[illegible]	D212-664-141	SHEET 1 OF 4
APPROVED	[illegible]	TITLE	SCALE
DE APPR.	[illegible]	XTUBE ASS'Y (205/212/412 HI FWD)	NTS
DATE	09.09.30		



D212-664-141/-141B
ASSEMBLY DETAIL D



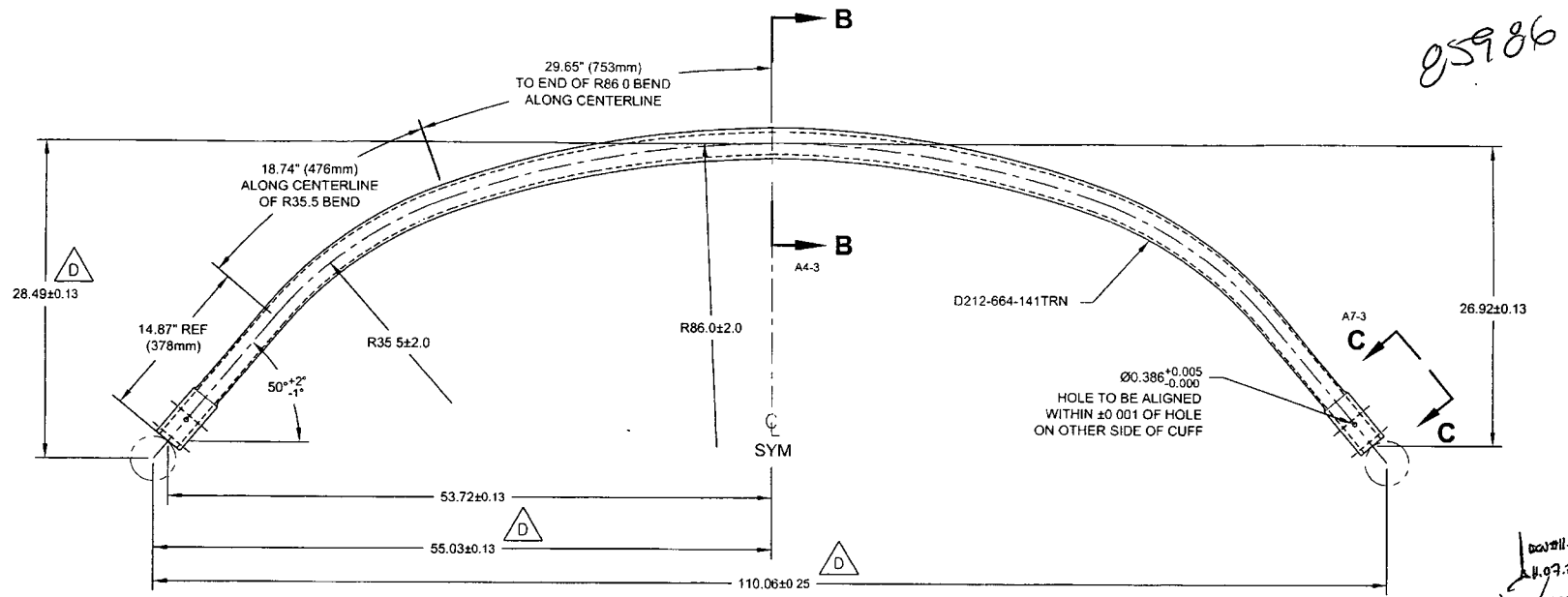
SECTION A-A D5-2
SCALE 4X

ECN#11-614
11.07.26
UNDER REVIEW
11.09.13

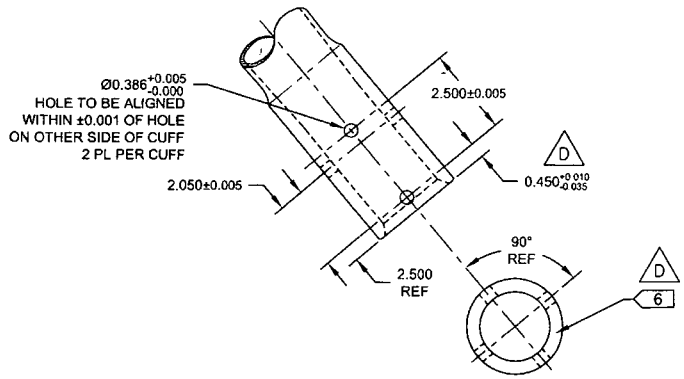
DEO ATTACHED

RELEASED
2009-10-29

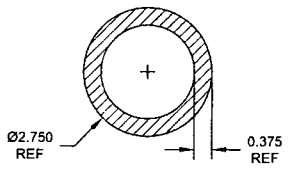
DESIGN	PH	**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	
CHECKED		DRAWING NO. REV. D
MFG. APPR.		D212-664-141 SHEET 2 OF 4
APPROVED		TITLE SCALE
DE APPR.		XTUBE ASS'Y (205/212/412 HI FWD) NTS
DATE 09.09.30		COPYRIGHT © 2009 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.



D212-664-501
BENDING AND DRILLING DETAIL 10 D



VIEW C-C: CUFF DETAIL C2-3
SCALE 3X



SECTION B-B C4-3
SCALE 4X

09986

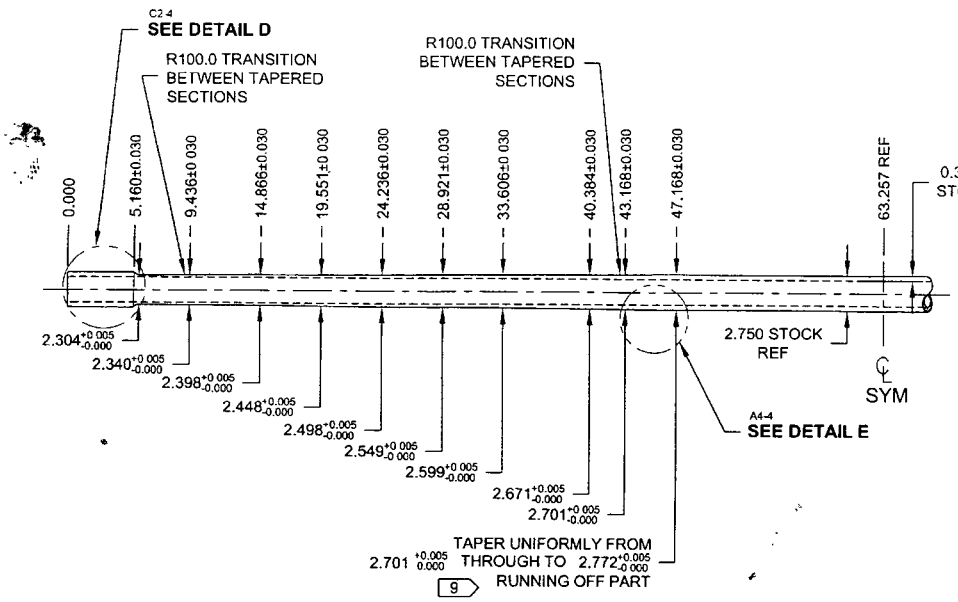
UNDER REVIEW
11.06.13

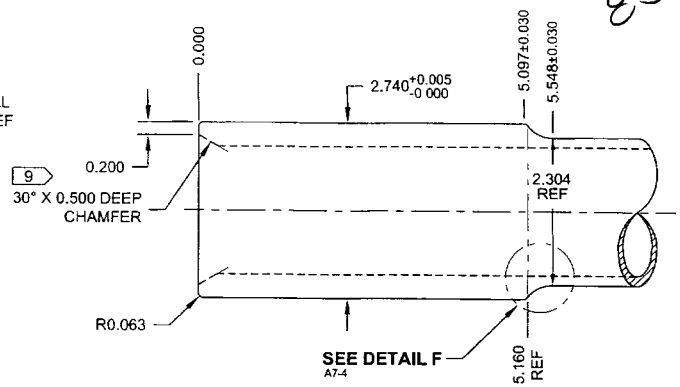
DEO ATTACHED

RELEASED
2009-10-29

DESIGN	PH	DART AEROSPACE LTD	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. D
MFG. APPR.		D212-664-141	SHEET 3 OF 4
APPROVED		TITLE	SCALE
DE APPR.		XTUBE ASS'Y (205/212/412 HI FWD)	NTS
DATE	09.09.30		

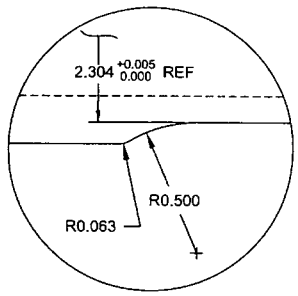
85986



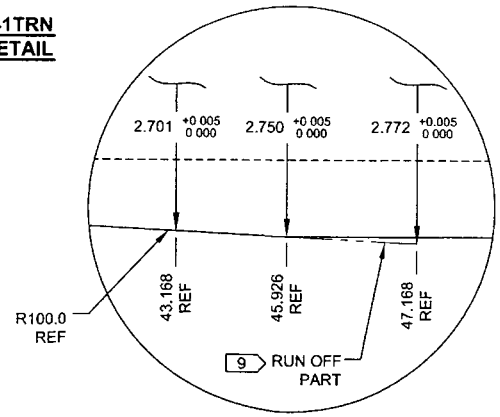


DETAIL D:
CROSSTUBE CUFF D8-4
SCALE 5X

D212-664-141TRN
TURNING DETAIL



DETAIL F:
CUFF TRANSITION C2-4
SCALE 10X



DETAIL E:
TAPER RUN-OFF C5-4
NOT TO SCALE

UNDER REVIEW
CP 11.06.13

DEO ATTACHED

RELEASED
2009 -10- 29

DESIGN	PH	**DART AEROSPACE LTD** HAWKESBURY, ONTARIO, CANADA	
DRAWN	RF		
CHECKED		DRAWING NO.	REV. D
MFG. APPR.		D212-664-141	SHEET 4 OF 4
APPROVED		TITLE	SCALE
DE APPR.		XTUBE ASS'Y (205/212/412 HI FWD)	NTS
DATE	09.09.30		

85986

DRAWING NO.	TITLE	REV. D	DART AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
D212-664-141	XTUBE ASSY (205/212/412 HI FWD)		ENGINEERING ORDER	D212-664-141-D-1	SHEET 1 OF 2	NTS

DRAWN	CHECKED	MFG. APPR.	APPROVED	DE APPR.
DATE 11.04.07	DATE 11.04.11	DATE 11.04.12	DATE 11/04/12	DATE 11.04.12

RELEASED
2011 -04- 18

PURPOSE:
ADD AN INSPECTION WINDOW TO UNDERSIDE OF CROSSTUBE.

CHANGE:

NOTES 2 OF SHEET 1 IS AMENDED AS FOLLOWS:

IS:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
MASK UNDERSIDE OF CROSSTUBE AS SHOWN (HATCHED AREA) AND
PAINT OUTSIDE PER DART QSI 005 4.2
REMOVE MASKING AND APPLY CLEAR COAT

WAS:

2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
PAINT OUTSIDE PER DART QSI 005 4.2

UNDER REVIEW
06.13
ECN 11-614
11.07.28

85986

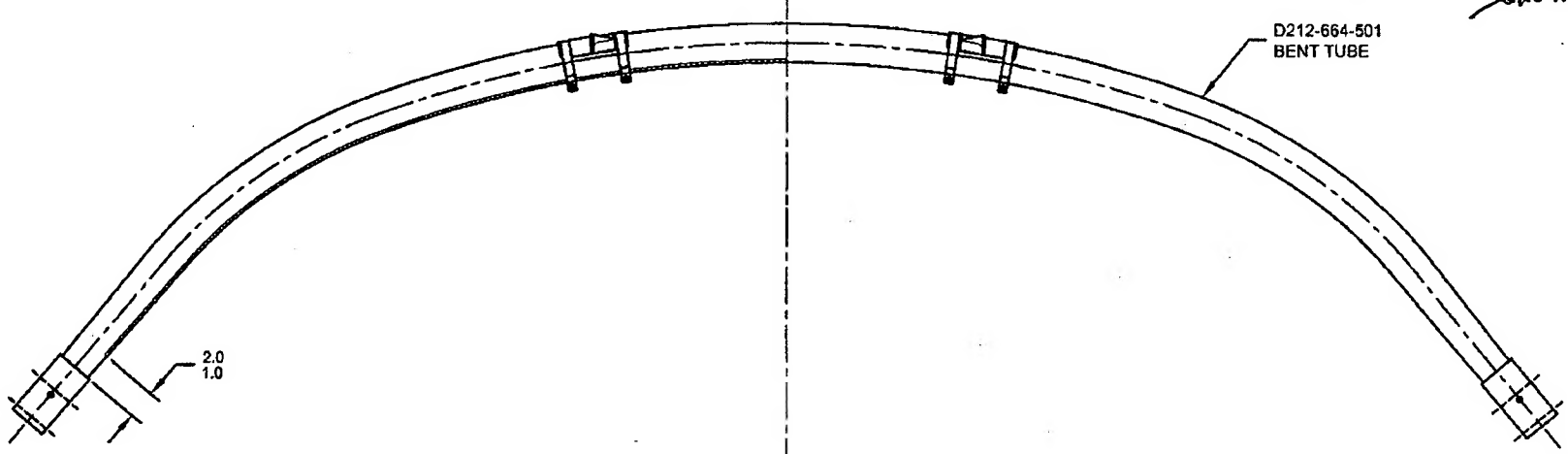
DRAWING NO.	TITLE	REV. D	DART AEROSPACE LTD ENGINEERING ORDER	D.E.O. NO.	SHEET NO.	SCALE
D212-664-141	XTUBE ASSY (205/212/412 HI FWD)			D212-664-141-D-1	SHEET 2 OF 2	NTS

DRAWN	CHECKED	MFG. APPR.	APPROVED	DE APPR.
DATE 11.04.07	DATE 11.04.11	DATE 11.04.12	DATE 11/04/12	DATE 11.04.12

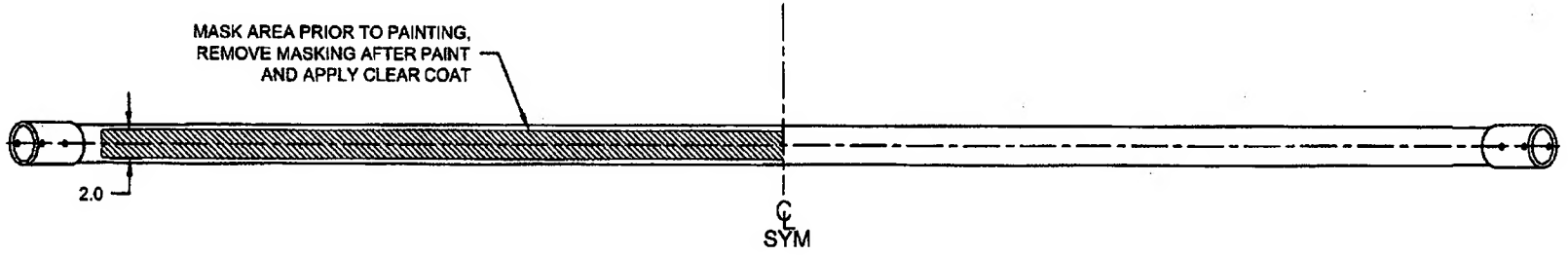
UNDER REVIEW
GP 11/06.13
ECN# 11-614
11.07.28

IS:

WAS:



D212-664-141/-141B
ASSEMBLY DETAIL



95986

DRAWING NO.	TITLE	REV. D	DART AEROSPACE LTD	D.E.O. NO.	SHEET NO.	SCALE
D212-664-141	CROSSTUBE ASS'Y (205 HI FWD)		ENGINEERING ORDER	D212-664-141-D-2	SHEET 1 OF 1	NTS

DRAWN	CHECKED	MFG. APPR.	APPROVED	DE APPR.
DATE 11.07.15	DATE 11.07.20	DATE 11.07.21	DATE 11/07/21	DATE 11.07.21

PURPOSE:
REPLACE MAGNOBOND WITH PROSEAL.

CHANGE:

IS:

Item	Qty -141	Qty -141B	Part Number	Description
7	A/R	A/R	PROSEAL 890 B-2	SEALANT, AMS-S-8802 CLASS B-2

WAS:

7	A/R	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299-947-100, TYPE II, CLASS 2 ADHESIVE)

NOTE 12 & 15, SHEET 1 IS AMENDED AS FOLLOWS:

IS:

12) TO INSTALL D2893-1 SUPPORT: ABRADE MATING SURFACE OF SUPPORT AND CROSSTUBE WITH 180-GRIT SANDPAPER AND REMOVE RESIDUE WITH MEK (OR EQUIVALENT). APPLY A 0.04" TO 0.07" THICK LAYER OF PROSEAL 890 CLASS B-2 (OR AMS-S-8802 CLASS B-2) SEALANT TO MATING SURFACE OF SUPPORT.

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING. **PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.**

WAS:

12) INSTALL D2893-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 TO THE SURFACE OF D2893-1 THAT WILL BE IN CONTACT WITH THE CROSSTUBE PER QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.

15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED 2011-07-28